

ANNUAL REPORT

OF THE DIRECTOR
OF THE

MUSEUM OF COMPARATIVE
ZOOLOGY

AT HARVARD COLLEGE

1959-1960

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PUBLICATIONS ISSUED BY OR IN CONNECTION
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AT HARVARD COLLEGE

BULLETIN (octavo) 1863 — The current volume is Vol. 125.

BREVIORA (octavo) 1952 — No. 139 is current.

MEMOIRS (quarto) 1864-1938 — Publication was terminated with Vol. 55.

JOHNSONIA (quarto) 1941 — A publication of the Department of Mollusks. Vol. 4, no. 40 is current.

OCCASIONAL PAPERS OF THE DEPARTMENT OF MOLLUSKS (octavo) 1945 — Vol. 2, no. 26 is current.

PROCEEDINGS OF THE NEW ENGLAND ZOOLOGICAL CLUB (octavo) 1899-1948 — Published in connection with the Museum. Publication terminated with Vol. 24.

The continuing publications are issued at irregular intervals in numbers which may be purchased separately. Prices and lists may be obtained on application to the Director of the Museum of Comparative Zoology, Cambridge 38, Massachusetts.

Of the Peters "Check List of Birds of the World," volumes 1-3, 4 and 6 are out of print; volumes 5, 7 and 9 are sold by the Museum, and future volumes will be published under Museum auspices.

PUBLICATIONS OF THE
BOSTON SOCIETY OF NATURAL HISTORY

The remaining stock of the scientific periodicals of the Boston Society of Natural History has been transferred to the Museum of Comparative Zoology for distribution.

PROCEEDINGS — Volumes available: 3, 5, 6, 8, 11, 14-17, 20-22, 24-27, 30-34, 37. \$4.00 per volume.

OCCASIONAL PAPERS: Volume 2, \$5.00; Volume 3, \$4.00; Volume 4 (1-3), \$10.00; Volume 6, \$5.00.

MEMOIRS: Requests for some specific memoirs can be filled but no list is available.

MUSEUM OF COMPARATIVE ZOOLOGY

I submit herewith the one-hundred-and-first annual report of the Museum of Comparative Zoology, for 1959-60. In November 1959 we celebrated the centennial of the Museum's founding with a public lecture by the distinguished British biologist, Sir Julian Huxley, followed by a reception in the Museum and a dinner in Memorial Hall for some 300 friends. Although (owing to ill-timed modesty on the part of our founder) our Museum bears the awkward and (currently) meaningless name of the Museum of Comparative Zoology, it is commonly termed "The Agassiz Museum." Rightly so; for it is mainly to the support of three generations of the Agassiz family that the Museum owes its foundation and its subsequent successful career. For the last fourteen years of his life Louis Agassiz labored unceasingly for the institution. At his death there had arisen, through his efforts, a building of fully half the Museum's present extent; in it were already housed splendid research collections; within its walls had already been trained a group of students whose scientific descendants were to include in later generations the great majority of American workers in animal biology. With the passing of Louis Agassiz in 1873, however, the Museum was in danger of collapse, for its endowment was exceedingly small. At this point his son, Alexander Agassiz, took charge, completed the building, financed the institution for a third of a century, and in his will established a trust fund from which the Museum draws substantial support today. In later decades Alexander's youngest son, the late George R. Agassiz, continued the family interest and gave us major support without which the institution might well have become submerged by the tide of inflation. It is to be hoped

that in the future we may find friends as firm and as confident of our worth as have been the Agassizs of three generations.

Had Louis Agassiz been with us at our celebration, what would his feelings have been? What would he have thought of the Museum's present status in the light of his ambitions for the future of the M.C.Z. and his strenuous efforts toward its early development?

In some regards, we can be quite sure, he would have felt disappointment. Louis Agassiz never knew bounds to his ambitions and hopes for any project in which he engaged. He publicly stated that he planned his new museum as the American counterpart to the great museums then in process of formation in Paris and London. But in moments when not completely dominated by pure enthusiasm he must, I am certain, have realized that this aim was impossible of full attainment. Both the London and Paris museums were, and are, supported by their national governments and situated in the capital and metropolis of the country in each case. Cambridge is not the American capital, nor the American metropolis, and a museum here could obviously not look forward to support from the federal government. It was hence inevitable that (stimulated in great measure by Agassiz's example) other institutions, national and metropolitan, should arise which could gain greater support and grow to greater size — the National Museum of the Smithsonian Institution in our capital, sponsored by the federal government and supported by its funds, and the American Museum of Natural History in New York, supported not only by gifts from private individuals of that metropolis but also by major annual appropriations from the city government. Under the circumstances it is not unexpected to find that these institutions have grown to a magnitude far larger than that of the M.C.Z. and that, logically, because of public support, they have developed exhibition programs far beyond our powers.

But in other regards, closer to Louis Agassiz's heart, we have not failed him. Research and teaching were the objectives of Louis Agassiz's life — personal research being more prominent in his earlier, European, career, teaching and the encouragement of research dominant in his life in Cambridge. These aims are those of a university. And whereas the connections of the museums of Paris, London, Washington and New York with educational institutions are at the best tenuous, the M.C.Z. is, in contrast, an integral part of a major university. It has an enthusiastic and exceedingly able staff not merely capable of performing research of high quality but of instilling their own spirit into the increasing numbers of students who seek their guidance. I would in no way decry the high standing of a number of university museums of more limited coverage but I think it can be said with confidence that the Museum of Comparative Zoology is the outstanding university museum of this country, if not of the world. Thus, in the major areas of his interest, we have fully lived up to the high hopes of our founder.

STAFF

Dr. George Gaylord Simpson, distinguished student of fossil mammals and of evolutionary processes, joined us as an Alexander Agassiz Professor last autumn. Dr. Giles W. Mead, formerly in charge of the government fisheries laboratory in Washington, came to us as Curator of Fishes in April, giving promise of a bright future to a department with a history of past distinction; Mr. Schroeder, who has for many years cared for our collections becomes Research Ichthyologist. Dr. William L. Brown, able research worker on ants, who has rendered invaluable services to us in curatorial care of the insect collection, will leave us this autumn to take a post at Cornell University; from Cornell to the Museum will come this autumn, as Associate Curator of Insects, Dr. Howard E. Evans,

whose research interests lie in the systematics and habits of wasps. Mr. George W. Cottrell, Jr., has joined us as Associate in Ornithology to devote himself to a study of the families of birds.

Staff members were in constant demand for lectures and symposia in other institutions during the year. For example, Drs. Mayr and Simpson were among the major participants in the Darwin Symposium at the University of Chicago in November; Dr. Mayr was invited to Melbourne to participate in the centennial symposium of the Royal Society of Victoria; Dr. Simpson was the 1960 Jesup Lecturer at Columbia University; and Dr. Carpenter was the Case Memorial Lecturer at the University of Michigan. Dr. Simpson was awarded the honorary degree of Doctor of Science at the University of Chicago and Dr. Mayr and I were given the same degree at the University of Melbourne and the University of Buffalo, respectively. Dr. Mayr will be president of the XIII International Ornithological Congress to be held at Ithaca in 1962, and I have been named president of the XVI International Zoological Congress, to take place in Washington in 1963. I was given the Elliott Medal of the National Academy of Science, awarded annually for work in zoology and paleontology.

Some 33 students studied with staff members for advanced degrees in biology and geology and in addition, as customary, staff members engaged in formal teaching in various instances. A well-received new departure was the initiation by Dr. Williams of a course on "The Biology of Reptiles and Amphibians." Dr. Levi continued his work with the Academic Year Institute for High School Teachers of Science and Mathematics.

RESEARCH

The increasing tempo of research in the Museum is indicated by the long appended list of publications by the staff and by

the numerous and varied research projects cited as in process by the departments.

In the field of mammals, Dr. Lyman has continued investigation of the factors controlling the onset of and arousal from hibernation, and Mr. Schevill has, through the Woods Hole Oceanographic Institution, continued his studies of cetacean biology and systematics. In ornithology, Mr. Greenway has edited and prepared manuscript for the Check-List of Birds of the World. Dr. Paynter has continued work on material from the Indian expedition, and on the Smithe collection from Guatemala; this will result in a joint publication on the avifauna of the Tikal National Park. Dr. Paynter has also well toward completion a complete review of the demographic aspects of the herring gull.

A very considerable amount of work is in progress under the aegis of the department of herpetology. The major project on anoline lizards has continued, with field studies in Puerto Rico by A. S. Rand and in Cuba by R. Ruibal, both studies being in association with or under the direction of Curator Williams. Studies were also undertaken on Hispaniolan *Anolis*, and as a by-product, on the fauna of the Port-au-Prince region of Haiti, with participation by Williams, Shreve and Rand. A six-month visit by Dr. P. E. Vanzolini of Sao Paulo brought a long delayed revision of South American chelids near completion. In addition, Dr. Vanzolini completed a revision of South American *Leiocephalus* and a study of the *Gonadotes albogularis-fuscus* complex in Colombia. Dr. Williams collaborated with Dr. T. S. Parsons in the description of the detailed morphology of two Jurassic turtle skulls and in a discussion of the modern Amphibia. Mr. Shreve continued work on the *Sphaerodactylus difficilis* group and completed descriptions of two new species of *Eleutherodactylus* from Haiti. Associate Garth Underwood studied scale organs in snakes as well as certain aspects of their visceral anatomy with

a view to testing the utility of these characters in an analysis of snake phylogeny. Two visitors spent the year in the department doing full time research. Dr. J. M. Gallardo of Buenos Aires studied our South American frogs and completed a study of the subspecies of *Bufo granulatus* and of the family Pseudidae. Dr. R. V. Shah completed three projects, including a study of the closing mechanisms in turtles with hinged shells, a study of lung musculature in turtles and a comparison of the neck musculature in the pleurodire turtle *Chelodina* and the cryptodire *Deirochelys*.

Dr. Bigelow and Mr. Schroeder worked on a collection of elasmobranchs trawled in the Gulf of Mexico and southward to the mouth of the Amazon by the U.S. Fish and Wildlife Service. Dr. Bigelow and Dr. George Myers worked on a revision of the engraulid and clupeid fishes, based on a manuscript prepared years ago by Dr. Samuel F. Hildebrand — this for volume III of Fishes of the Western North Atlantic. Mrs. Dick aided in this work and also studied the Haplomi.

In the department of insects, Dr. Darlington completed a 400-page installment of work on carabid beetles of New Guinea. Dr. Brown, with the cooperation of Dr. Walter Kempf, finished a monograph of the ant tribe Basicerotini and continued ant taxonomic studies especially on Dacetini and Ponerini. Dr. Levi revised the American spiders of the family Theridiidae, under a grant from the National Institute of Health. Dr. Wilson did further work on the Pacific ant fauna and on the social behavior of ants, the most interesting aspect of which was the working out in several species of a large section of the "chemical language" — i.e., glandular secretions used in communication. Dr. Chapin continued work on coccinellid beetles, particularly those of Micronesia.

Dr. Chickering continued work on Neotropical spiders and Dr. Fairchild on Neotropical biting flies. In connection with his work on Lepidoptera, Professor Forbes is in the last stages

of proofreading of the final part of his "Lepidoptera of New York." Dr. A. Holm of the University of Uppsala worked up the Lindroth collection of Alaskan spiders. Mr. Allen Brady revised the spider genus *Sosippus* (Lycosidae).

Dr. Carpenter, in addition to continuing studies of Permian insects from Oklahoma and Kansas completed manuscript and illustrations for the insect volume of the Treatise on Invertebrate Paleontology.

In the Department of Mollusks, the number of *Johnsonia* monographing the western Atlantic forms of the large genus *Calliostoma* was completed by Drs. Clench and Turner and is in press. They are also continuing work in the Melanesian land snails of the subfamily Papuininae. Dr. Clench finished work on two island groups in his continuing studies of land and freshwater mollusks of the Bahamas. Dr. Turner has continued her interest in West Indian land shells; a report on Navassa Island has been completed and published. She has begun work on the land shells of the Seychelles Islands as a result of material received for study from the Yale expedition to those islands and has described a nematode parasite in *Stylondon*. Her work on a catalogue of the Terebratulidae is well advanced. Mr. Richard Johnson has completed a bibliography of A. A. Gould.

Dr. Deichmann has completed a report on New England shallow water echinoderms on the basis of a manuscript by James Miller, is preparing field guides for the horny and stony corals of the shallow water of Puerto Rico and, with Richard A. Boolootian is preparing a report on Selenka's *Thelenota formosa*, rediscovered in the Marshall Islands.

In the area of vertebrate paleontology, Dr. Edinger progressed in her long-term studies on various aspects of brain evolution as revealed by endocranial casts. Professor Patterson has continued his interest in the early evolution of mammals

as well as in the Tertiary faunas of South America. Dr. Simpson has been mainly concerned with completion of a volume on principles of animal taxonomy, but has written a number of brief, largely theoretical papers and made some progress on studies of mammalian classification, and on Tertiary stratigraphy of America and Europe. Such time as I have been able to devote to research has centered on lower tetrapods from the Carboniferous, and from the Triassic of South America. Dr. Barry Cox of King's College, University of London, spent the year with us as a Harkness Fellow and made a thorough study of our Triassic dicynodonts from Brasil and Argentina. The project of a bibliography of the literature of vertebrate paleontology, in which I have been engaged for many years with Miss Wright, Dr. Edinger and more recently, Mr. Richard Van Frank, is at long last approaching completion; about half has been typed ready for publication by photo-lithography.

During the year Dr. Whittington made various studies of Ordovician and Silurian trilobites and completed work for publication on trilobites from the Silurian of Arctic North America and the Ordovician of Nevada and Newfoundland. Substantial progress was made with further studies of trilobites from Newfoundland and from the Middle Ordovician of the Bala region of Wales. Dr. Kummel completed work on Triassic faunas from New Zealand and on a fauna of similar age from Thailand. He has, further, completed his major section of the Treatise on Invertebrate Paleontology dealing with nautiloids, and finished work on Triassic faunas from Nevada and Spitzbergen, and Triassic nautiloids of the Middle East. Work on a monographic study of early Triassic faunas of the western United States is in progress.

EXPEDITIONS AND TRAVEL

No major expeditions were sponsored during the year, but as usual many trips were undertaken by staff members for field

and museum studies and for collection of materials. Dr. Mayr took advantage of his invitation to Australia to do field work there as well as to visit various universities and institutions on that continent and in India. Dr. Paynter worked briefly in Guatemala and visited Ecuador, where he investigated the possibilities for future field work. Mr. Schevill participated in cruises of the Woods Hole Oceanographic Institution. All four of the Greater Antilles were visited by Dr. Williams, who studied the ecology and behavior of lizards of those islands. Drs. Juan Rivero, Rodolfo Ruibal, Garth Underwood, and Mr. A. S. Rand participated in phases of this expedition. Dr. Brown spent some three weeks working on Barro Colorado Island in the Canal Zone; Dr. Wilson traveled in Costa Rica and Dr. Levi, as customary, worked last summer at the Rocky Mountain Biological Laboratory. Mr. Foster collected mollusks in Antigua, and Dr. Kummel collected invertebrate fossils from all known horizons of the Nevada Triassic. Dr. Turner furthered her work in boring mollusks by spending two and one-half months in the study of the collections of Teredinidae in European museums.

COLLECTIONS

During the year, funds from the substantial grant from the National Science Foundation, previously reported, have been used by every department for the improvement of the collections. New storage cases have been constructed to replace inadequate temporary housing and new equipment has been purchased. Even more important from the standpoint of the collections has been the use of some of the funds for the employment of both scientific and technical aides in sorting, identifying, and cataloguing accumulations of valuable materials received in past years.

In the mammal department, much work was done on reorganization of the collections, in re-arrangement, making a

shelf-check and, as far as possible, revising the taxonomy. Mrs. Katherine M. Reed completed the geographic index to the collections and Charles Mack cleaned a large accumulation of old skeletons. In ornithology, about half the entire skeletal collection has been identified, boxed and arranged. Mr. Frank B. Smithe added a considerable number of specimens to the Guatemalan collection; we now have the best Petén collection in existence, the skeletal specimens being particularly valuable. About 70 Pakistan birds have been received from the Zoological Survey Department of that country. Some 57 skeletal specimens have been purchased from M. Alvarez del Toro to strengthen our Central American holdings, already excellent. Through the generosity of Mr. Alva Morrison we have obtained about 150 birds from South Africa, especially valuable because of the collection's strength in topotypic-material.

In herpetology, over 2800 reptiles and amphibians were catalogued during the year; however, a substantial backlog of uncatalogued material remains. Important additions include: a collection made in Dominica by James D. Lazell, Jr.; a Haitian collection made by the Curator and A. S. Rand, and one from Puerto Rico by the latter; Cuban specimens collected by R. Ruibal; a small but very valuable lot of Mexican forms donated by R. Etheridge; a large New Guinea collection given by K. R. Slater; Australian skinks and Kansas amphibians and reptiles donated by Gary Myers. Exchanges were completed with the following institutions: University of Malaya; Departamento de Zoologia, Sao Paulo; Peabody Museum, Yale University; Chicago Natural History Museum; University of Southern California; University of Tel Aviv; Institute de la Salle, Bogota; Institut Scientifique Cherifien; Museum Royale du Congo Belge. Under the facilities grant a number of new cabinets were built.

In the fish department 274 lots were added, including: a

large Galapagos collection from Otis Barton; many elasmobranchs and other fishes from the Gulf of Mexico, given by the U.S. Fish and Wildlife Service through Harvey Bullis, Jr.; a collection from the Boston Museum of Science.

A considerable amount of work was done in the department of insects under the facilities grant, particularly in transferring insects from old, miscellaneous boxes to trays in standard drawers. The biggest advances in this regard were in North American beetles, in which the transfer of the Liebeck collection is now almost complete, and in ants. The putting of the entire ant collection in first class order by Dr. Brown before leaving for Cornell is an outstanding curatorial achievement. In the spider collection, the work of placing previously identified and sorted specimens in mason jars, or in vials with neoprene stoppers, has been nearly completed after four years of work, and progress has been made in sorting and putting in place previously unsorted accessions. An outstanding accession is the collection of ants presented by Dr. James W. Chapman; this is probably the best collection of Philippine ants in existence, and fills an important gap in our collection.

In the mollusk department, curatorial work on the collection continued in various areas. A total of 4764 lots was received from a variety of sources. Of two most important collections added during the year, one was made by Dr. George Moore in the Gulf of Thailand during his residence as a visiting professor at Chulalongkorn University in Thailand; a second, donated by Dr. Joseph Bequaert, contains over 1000 lots of land and freshwater shells from Texas and Mexico. This latter collection, added to previous gifts from Dr. Bequaert, gives us the most complete existing collection from Texas.

The department of marine invertebrates received as a gift from the Hancock Foundation of the University of Southern California a complete set of the aspidochirote holothurians of the Panama region. Since no one locally is engaged in work

on parasitic worms, the museum's excellent collection, assembled by Dr. J. H. Sandground, has been sent on indefinite loan to the University of Massachusetts where active work is being done in this field.

In vertebrate paleontology a very considerable amount of progress has been made in the preparation of the large collection from the Argentine Triassic with the support of a National Science Foundation grant for the purpose, and further work has been done on fossil mammal materials and on Carboniferous and Permian tetrapods. In invertebrate paleontology, much progress has been made, thanks to the facilities grant, in cleaning, cataloging and re-arranging the echinoderm, brachiopod and trilobite collections. Some 3500 new entries have been made in the catalogues. Some additions have been made to the trilobite collections. In Dr. Kummel's field of interest in the Triassic, the U.S. Geological Survey has donated casts of all Triassic invertebrates described in Survey publications. Bonn University has given plastotypes of Timor Triassic ammonites, and the Canadian Geological Survey has furnished us with 25 Triassic plastotypes.

PUBLICATIONS

During the year there were published, under Miss Wright's editorship, a total of 1152 pages in the *Bulletin* and in *Breviora*. These include volume 121 nos. 3 to 8, volume 122, nos. 1 to 9 in the *Bulletin* and numbers 112 to 126 of *Breviora*. As customary the Museum sponsored publication of a series of papers in *Psyche*. Research publications by the staff, as listed in an appendix, numbered over fourscore, including such substantial work as a completely revised edition of *Quantitative Zoology* by Simpson, Roe and Lewontin and volume IX of the *Check-List of Birds of the World*.

LIBRARY

The library, under Miss MacKenzie, reports steady growth and improvement; currently our holdings number 242,638 books and pamphlets. Use of National Science Foundation funds and of an anonymous gift for the geology section have aided in further reducing the backlog of binding. Our geological holdings, once relatively weak, continue to improve; currently, for example, we are receiving the publications of almost every known geological survey, state and foreign. The areas of the library now devoted to geological books and journals have in consequence become badly congested, and it is hoped that a new room devoted to geology can presently be opened up at the far end of the east wing. A notable acquisition of the year was the collection of Dr. Oliver L. Austin, Jr., on Japanese ornithology which, with the exception of one rarity, includes every work of importance on the subject and is rivalled in comprehensiveness by but one Japanese institution. An extensive exhibit of rare and finely illustrated books from our collections, shown in Widener Library during the period of our centennial celebration, evoked very favorable comment.

EXHIBITS

In our continuing project of renovation of the exhibition halls, a room containing a great part of our fossil mammals is nearly completed, and work has been commenced on a revised exhibit of invertebrate fossils. It has been impossible to finance this renovation from regular endowment income; the work has been made possible by special gifts which are, unfortunately, nearly exhausted. It is to be hoped that friends of the Museum interested in the type of popular education which such exhibits advance will enable us to continue. Meantime, we have been able to add a modest source of income through the establishment, under Dr. Paynter's direction, of a booth for the sale of natural history materials.

ACKNOWLEDGMENTS

A number of gifts were noted above; the various departments are in addition grateful to numerous other donors for donations of specimens. The mammal department: Duncan Hodgson, J. K. Howard, Leonard LeBlanc, Roland Lindemann, R. Molina, R. F. Nunnemacher, Ralph Palmer, R. Ruibal, Frank B. Smithe. The bird department: James Baird, Melvin L. Bristol, Frances L. Burnett, Stanley Cobb, Mrs. John Y. Dater, Jack P. Hailman, Joseph A. Hagar, John K. Howard, Arthur Loveridge, Robert T. Paine, III, Phillip J. Sawyer, Walter Stone. The department of herpetology: R. Etheridge, Arthur Loveridge, Gary Myers, Stanley J. Olsen, A. S. Rand, R. Ruibal, Garth Underwood. The insect department: A. W. L. Armstrong, A. Brady, R. M. Bohart, E. B. Britton, A. M. Chickering, K. W. Cooper, R. Flemming, David G. Kissinger, R. A. Lewin, C. H. Lindroth, Arthur Loveridge, P. Susai Nathan, J. Negre, C. F. Philip, D. R. Reynolds, L. Roth, H. Stahnke, F. H. Walz. Mollusk department: H. D. Athearn, Ruth Craine, John Fitch, J. K. Howard, Yoshio Kondo, P. de Mesa, J. S. Schwengel. Department of marine invertebrates: Arthur G. Humes, Arthur Loveridge, Reginaldo Pfaff, Lowell P. Thomas.

Many of the departments owe debts of gratitude to friends and volunteers for assistance in their work. A number of persons helped Dr. Williams by lecturing or aiding in discussion in his new course in the biology of reptiles and amphibians, and live reptiles for use in the course were received from the University of Florida, R. Ruibal and Garth Underwood. In the insect department Dr. E. A. Chapin gave, as in other recent years, helpful aid and advice, and Prof. W. T. M. Forbes is to be thanked for useful aid and work on the Lepidoptera. Dr. Bequaert, as in other years, spent the summer at the Museum and rendered valuable assistance. Dr. James A. G. Rehn, Harold J. Grant, Jr., and Roy R. Snelling aided in caring for

loan materials, and thanks for useful work are due to employees and volunteer assistants who worked during the year, including Mrs. Sue Kinnaird, Mrs. Miriam B. McKown, Miss Karen Thiman, Mrs. Sonia Sheldon, Mrs. Dolores Bush, Miss Cecilia Tsao and Miss Charuni Ratanarat. Volunteer workers include Alan Kostinsky, Allan Brady and Miss Christine Reid. In the mollusk department Richard W. Foster and Richard I. Johnson did valuable curatorial work and Dr. Merrill Champion continued editorial work.

The bird department is most grateful to an anonymous friend whose gift forms the nucleus of an endowment fund to be used for special departmental projects.

ALFRED S. ROMER, *Director*



One of the cases from M.C.Z.'s centennial exhibition at Widener Library, showing some of the classics in zoology, with the earliest book in the library, "De Animalibus" by Albertus Magnus, Mantuae, 1479.



President Pusey, Professor Romer and Sir Julian Huxley in a pleasant conversational mood at the centennial celebration.

MUSEUM OF COMPARATIVE ZOOLOGY

FACULTY 1960-1961

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STAFF

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NELDA EMELYN WRIGHT, M.A., *Research Assistant and Editor of Publications.*

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RICHARD HAVEN BACKUS, PH.D., *Associate in Ichthyology.*

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- No. 112. A mounted skeleton of the giant plesiosaur *Kronosaurus*.
By Alfred Sherwood Romer and Arnold D. Lewis. 14 pp. October 15, 1959.
- No. 113. A new *Phyllomedusa* from Bolivia (Salientia, Hylidae).
By Benjamin Shreve. 3 pp. November 2, 1959.
- No. 114. *Anomalophis bolcensis* (Massalongo), a new genus of fossil snake from the Italian Eocene. By Walter Auffenberg. 16 pp. November 23, 1959.
- No. 115. The lemon-colored plexaurids from the West Indies and Brazil. By Elisabeth Deichmann and F. M. Bayer. 12 pp. November 25, 1959.
- No. 116. Insectivores of the Middle Miocene Split Rock local fauna, Wyoming. By Katherine Milmine Reed. 11 pp. January 6, 1960.
- No. 117. Notes on Hispaniolan herpetology. 1. *Anolis christophei*, new species, from the Citadel of King Christophe, Haiti. By Ernest E. Williams. 7 pp. January 20, 1960.
- No. 118. A survey of the leptodactylid frogs, genus *Eupsophus*, in Chile. By José M. Ceí. 13 pp. February 24, 1960.
- No. 119. Arctic archibenthal and abyssal mollusks from Drifting Station Alpha. By Arthur H. Clarke, Jr. 17 pp. March 8, 1960.
- No. 120. Two species of tortoises in northern South America. By Ernest E. Williams. 13 pp. March 9, 1960.
- No. 121. Three new species of *Micrathena* (Araneae, Argiopidae) from South America. By Arthur M. Chickering. 11 pp. March 10, 1960.

- No. 122. Notes on certain species of *Micrathena* (Araneae, Argiopidae) from South America. By Arthur M. Chickering. 7 pp. March 11, 1960.
- No. 123. *Alepisaurus brevirostris*, a new species of lancetfish from the western North Atlantic. By Robert H. Gibbs, Jr. 14 pp. March 14, 1960.
- No. 124. Anisian ammonoids from Malaya. By Bernhard Kummel. 8 pp. March 15, 1960.
- No. 125. The luminous organs of *Proctoporus* (Sauria, Reptilia) — a re-evaluation. By Willard D. Roth and Carl Gans. 12 pp. May 27, 1960.
- No. 126. Mid-Scythian ammonites from Iwai formation, Japan. By Bernhard Kummel and Sumio Sakagami. 11 pp. June 3, 1960.

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Vol. 121

- No. 3. The spider genera *Achaearanea*, *Theridion* and *Sphyrotinus* from Mexico, Central America and the West Indies. (Araneae, Theridiidae). By Herbert W. Levi. 108 pp., 430 figs. July, 1959.
- No. 4. Three new genera and one new species of the family Gonostomatidae. By Marion Grey. 19 pp., 3 figs. July, 1959.
- No. 5. The anoles of the eastern Caribbean (Sauria, Iguanidae). Parts I-III. By Julian S. Kenny, Victor C. Quesnel, Garth Underwood, and Ernest E. Williams. 41 pp., 1 pl. July, 1959.
- No. 6. On a taxonomic puzzle and the classification of the earthworms. By G. E. Gates. 34 pp. August, 1959.
- No. 7. Bathonian Foraminifera of England. By Richard Cifelli. 105 pp., 4 figs., 7 pls. September, 1959.
- No. 8. Silicified Middle Ordovician trilobites: Remopleuridiidae, Trinucleidae, Raphiophoridae, Endymioniidae. By H. B. Whittington. 127 pp., 8 figs., 36 pls. November, 1959.

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- No. 1. Skeleton and musculature of the head of *Gelastocoris oculatus* (Fabricius) (Hemiptera-Heteroptera). By Margaret C. Parsons. 53 pp., 28 figs. December, 1959.
- No. 2. A preliminary review of the family Gonostomatidae, with a key to the genera and the description of a new species from the tropical Pacific. By Marion Grey. 70 pp., 3 figs. February, 1960.
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- No. 5. Land Shells of Navassa Island, West Indies. By Ruth D. Turner. 13 pp., 7 pls. March, 1960.
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- No. 9. The snakes of Ecuador. A check list and key. By James A. Peters. 52 pp. June, 1960.

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- No. 24. Calvin Goodrich; a bibliography and catalogue of his species. By Joseph Rosewater. Pp. 189-208. October 20, 1959.
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